

WHAT IS CLAIMED IS:

1. A conduit for providing a passageway of blood between a chamber of the heart and an adjacent blood vessel through a heart wall, comprising:
  - an elongate body having a proximal end and a distal end and a lumen extending therethrough; and
  - an engagement mechanism on a distal end of the elongate body configured to engage the blood vessel.
2. The conduit of claim 1, wherein the engagement mechanism includes at least one flange-like member.
3. The conduit of claim 2, wherein the engagement mechanism includes a plurality of flange-like members disposed around the distal end of the elongate body.
4. The conduit of claim 3, wherein the blood vessel is a coronary artery and the flange-like members are configured to engage a posterior wall of the coronary artery.
5. The conduit of claim 1, wherein the engagement mechanism is configured to engage an inner peripheral surface of the blood vessel.
6. The conduit of claim 5, wherein the engagement mechanism is

configured as a ring allowing passage of blood therethrough.

7. The conduit of claim 1, wherein the engagement mechanism engages a wall of the blood vessel adjacent the heart wall.

8. The conduit of claim 7, wherein the blood vessel is a coronary artery and the wall of the blood vessel is a posterior wall.

9. A method of delivering a conduit into a heart wall between a heart chamber and an adjacent blood vessel, comprising:

inserting a hollow needle through an anterior wall and a posterior wall of the blood vessel through the heart wall and into the heart chamber;

inserting a guidewire through the hollow needle into the heart chamber;

removing the hollow needle;

inserting a dilator over the guidewire into the heart wall;

removing the guidewire; and

placing a conduit over the dilator into the heart wall.

10. The method of claim 9, further comprising measuring a thickness of the heart wall prior to placing the conduit.

11. The method of claim 9, further comprising determining if the needle has entered the heart chamber.

12. The method of claim 11, wherein the determining includes providing an access port near a proximal end of the needle and an opening in flow communication with the access port near a distal end of the needle such that blood enters the access port and exits the opening when the access port on the needle has been inserted into the heart chamber.

13. The method of claim 9, wherein placing the conduit includes screwing the conduit into the heart wall.

14. A device for measuring a depth of insertion into a heart, comprising:

an elongate tubular body having a proximal end and a distal end and a lumen extending at least partially therethrough;

an access port near the proximal end of the elongate tubular body;

an opening near the distal end in flow communication with the access port; and

at least one depth indication mechanism visible from the outside of the tubular body for indicating depth of travel of the device,

wherein the device is configured so that when the device is inserted into the heart and reaches a blood-containing portion of the heart, blood flows through the access port and the depth indication mechanism indicates how far the distal end has traveled.

15. The device of Claim 14, wherein the device is configured to permit advancement of a conduit to be placed between a heart chamber and a coronary artery.

16. The device of Claim 14, wherein the lumen extending at least partially through the elongate tubular body is a side lumen.

17. The device of Claim 14, further comprising a second lumen located adjacent the lumen extending at least partially through the elongate body, the second lumen being configured to receive a conduit to be placed between a heart chamber and a coronary artery.

18. A method of providing direct blood flow between a heart chamber and a coronary vessel, the method comprising:

placing a guide device through an anterior wall and a posterior wall of the coronary vessel and through a heart wall between the heart chamber and the coronary vessel;

forming a passageway in the heart wall at a location defined by the guide device; and

placing a conduit within the passageway.

19. The method of claim 18, further comprising inserting a hollow needle through the anterior wall and posterior wall of the coronary vessel and the

heart wall prior to placing the guide device.

20. The method of claim 19, wherein the guide device is a guidewire and placing the guide device includes inserting the guidewire through the hollow needle until an end of the guidewire rests in the heart chamber.

21. The method of claim 20, further comprising removing the hollow needle after inserting the guidewire through the hollow needle.

22. The method of claim 19, further comprising measuring a depth of insertion of the hollow needle.

23. The method of claim 22, wherein measuring the depth of insertion includes viewing a depth indication mechanism on the exterior of the needle.

24. The method of claim 23, wherein the depth indication mechanism includes at least one marking.

25. The method of claim 18, further comprising placing the guide device at an angle relative to the posterior wall of the coronary vessel.

26. The method of claim 25, wherein placing the guide device at the angle includes inserting a hollow needle at the angle through the anterior wall

and the posterior wall of the coronary vessel and the heart wall prior to placing the guide device.

27. The method of claim 26, further comprising inserting the hollow needle through a guide template when inserting the hollow needle at the angle.

28. The method of claim 18, wherein forming the passageway includes dilating the heart wall.

29. The method of claim 28, wherein dilating the heart wall includes inserting a dilator over the guidewire.

30. The method of claim 29, wherein the dilator is configured as a sleeve.

31. The method of claim 30, further comprising inserting a sheath over the dilator.

32. The method of claim 31, wherein placing the conduit includes inserting the conduit into the sheath.

33. The method of claim 18, further comprising delivering via the guide device a first mechanism for forming the passageway and a second mechanism

for placing the conduit within the passageway.

34. The method of claim 33, wherein the first and second mechanisms are delivered via the guide device to the heart simultaneously.

35. The method of claim 34, wherein the first mechanism is delivered via the guide device to the heart and, after the first mechanism is removed from the heart via the guide device, the second mechanism is delivered via the guide device to the heart.

36. The method of claim 18, further comprising measuring a distance from the anterior wall of the coronary vessel to the left ventricle prior to placing the guide device.

37. The method of claim 18, wherein the guide device is a guidewire.

38. The method of claim 18, further comprising inserting a sheath in the passageway.

39. The method of claim 38, wherein placing the conduit includes inserting the conduit into the sheath.

40. A device for measuring the depth of penetration from an anterior

wall of a coronary vessel to a heart chamber, comprising:

a hollow member defining a lumen and having a distal end and a proximal end, the hollow member being configured to be inserted into the coronary artery and the heart wall;

a depth indication mechanism on the hollow member; and

a portion of the member in flow communication with the lumen of the member so that blood from the heart chamber entering the lumen can be observed.

41. The device of claim 40, wherein the depth indication mechanism includes at least one marking on a surface of the hollow member.

42. The device of claim 41, wherein the depth indication mechanism includes a plurality of graduated markings.

43. The device of claim 40, wherein the portion includes an opening.

44. The device of claim 40, wherein the hollow member is a needle.

45. The device of claim 40, further comprising an access port disposed near the proximal end of the needle, said access port being in flow communication with the lumen.

46. The device of claim 40, wherein the portion is near a distal end of the needle.

47. A conduit for providing a passageway of blood between a chamber of the heart and an adjacent blood vessel through a heart wall, comprising:  
an elongate body having a proximal end and a distal end and a lumen extending therethrough; and  
threads extending around the outside of the elongate body to secure the body to the heart wall.

48. A device for insertion into the heart wall of a patient, comprising an elongate body having threads to be screwed into the heart wall.

49. A method for inserting a conduit into a heart wall between a heart chamber and the coronary artery, comprising:  
screwing a stylet having a threaded tip and a nonthreaded body portion into the heart wall;  
screwing an outer sleeve having a threaded exterior over the nonthreaded body portion of the stylet;  
removing the stylet; and  
inserting the conduit into the heart wall through the outer sleeve.

50. A method for advancing a device into the heart wall of a patient through a coronary artery, comprising:

screwing a threaded device into the coronary artery to open the artery;  
pulling back on the artery; and  
screwing the threaded device into the heart wall.

51. A method of delivering a conduit into a heart wall between a heart chamber and an adjacent blood vessel, comprising:

inserting a hollow needle into the heart wall through the blood vessel into the heart chamber;  
inserting a guidewire through the hollow needle into the heart chamber;  
removing the hollow needle;  
inserting a dilator over the guidewire into the heart wall;  
removing the guidewire; and  
screwing a threaded conduit over the dilator into the heart wall.